ABSTRACT OF THE DISCLOSURE

A detector 101 outputs a detection signal indicating amplitude variation of an input frequency-multiplexed signal. An amplitude controller 102 adjusts the amplitude of the frequency-multiplexed signal by referring to the detection signal. A modulator 108 modulates the amplitude-adjusted frequency-multiplexed signal to produce a predetermined modulated signal. A second multiplexer 103 multiplexes the modulated signal and the detection signal to produce a multiplexed signal. An optical transmitter 104 converts the multiplexed signal into an optical signal, and then sends it out to an optical transmission path and the like. An optical receiver 105 converts the optical signal received through the optical transmission path into an electrical signal. A separator 106 separates the modulated signal and the detection signal from the electrical signal. A demodulator 109 demodulates the modulated signal to output the frequency-multiplexed signal. An amplitude adjuster 107 adjusts the amplitude of the frequency-multiplexed signal by referring to the detection signal to reproduce the original amplitude variation. With such structure, the present optical transmission system can prevent quality deterioration in a transmission signal due to instantaneous amplitude variations of the frequency-multiplexed signal and carry out optical transmission with less distortion.